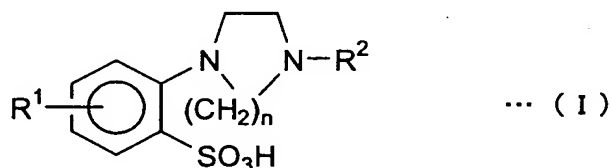


What is claimed is:

1. A medicament for suppressing intracellular excess accumulation of sodium ions, which comprises, as an active ingredient, an aminobenzenesulfonic acid derivative represented by the following general formula (I) or a salt thereof, or a hydrate thereof or a solvate thereof:



wherein R¹ represents hydrogen atom, a C₁-C₆ alkyl group, a C₃-C₇ cycloalkyl group, a halogenated C₁-C₄ alkyl group, a halogen atom, or a C₆-C₁₂ aryl group; R² represents hydrogen atom, a C₁-C₆ alkyl group, or a C₇-C₁₂ aralkyl group which may have one or more substituents selected from the group consisting of cyano group, nitro group, a C₁-C₆ alkoxy group, a halogen atom, a C₁-C₆ alkyl group, and amino group; and n represents an integer of from 1 to 4.

2. The medicament for suppressing intracellular excess accumulation of sodium ions according to claim 1, which is used for therapeutic and/or preventive treatment of disorders resulting from ischemia and reperfusion.

3. The medicament for suppressing intracellular excess accumulation of sodium ions according to claims 1 or 2, which is characterized to suppress an increase of intracellular sodium content induced by ischemia and reperfusion.

4. The medicament for suppressing intracellular excess accumulation of sodium ions according to any one of claims 1 to 3, wherein a substituting position R¹ is position-5.

5. The medicament for suppressing intracellular excess accumulation of sodium ions according to any one of claims 1 to 4, wherein n is 2.

6. The medicament for suppressing intracellular excess accumulation of sodium ions according to any one of claims 1 to 5, wherein R² is hydrogen atom, a C₁-C₃ alkyl group, or a C₇-C₁₂ aralkyl group which may have one or more substituents selected from the group consisting of a C₁-C₃ alkyl group, a C₁-C₃ alkoxy group, and a

halogen atom.

7. The medicament for suppressing intracellular excess accumulation of sodium ions according to any one of claims 1 to 6, wherein R² is hydrogen atom or a C₇-C₁₂ aralkyl group which may have one or more C₁-C₃ alkoxyl groups.

8. The medicament for suppressing intracellular excess accumulation of sodium ions according to any one of claims 1 to 7, wherein R² is hydrogen atom.

9. The medicament for suppressing intracellular excess accumulation of sodium ions according to any one of claims 1 to 8, wherein R¹ is hydrogen atom, a C₁-C₆ alkyl group, a C₅-C₆ cycloalkyl group, trifluoromethyl group, a halogen atom, or phenyl group.

10. The medicament for suppressing intracellular excess accumulation of sodium ions according to any one of claims 1 to 9, wherein R¹ is a C₁-C₃ alkyl group, cyclohexyl group, trifluoromethyl group, chlorine atom, bromine atom, or phenyl group.

11. The medicament for suppressing intracellular excess accumulation of sodium ions according to any one of claims 1 to 10, wherein R¹ is methyl group or propyl group.

12. The medicament for suppressing intracellular excess accumulation of sodium ions according to any one of claims 1 to 3, wherein the active ingredient is selected from the following compounds:

5-methyl-2-(1-piperazinyl)benzenesulfonic acid;

5-trifluoromethyl-2-(1-piperazinyl)benzenesulfonic acid;

5-n-propyl-2-(1-piperazinyl)benzenesulfonic acid;

5-phenyl-2-(1-piperazinyl)benzenesulfonic acid;

5-chloro-2-(1-piperazinyl)benzenesulfonic acid;

5-bromo-2-(1-piperazinyl)benzenesulfonic acid;

5-isopropyl-2-(1-piperazinyl)benzenesulfonic acid;

5-cyclohexyl-2-(1-piperazinyl)benzenesulfonic acid;

5-n-propyl-2-(1-homopiperazinyl)benzenesulfonic acid;

5-n-propyl-2-[4-(2,3,4-trimethoxybenzyl)-1-piperazinyl]benzenesulfonic acid;

5-n-propyl-2-[4-(3,4-dimethoxybenzyl)-1-piperazinyl]benzenesulfonic acid

or a salt thereof, or a hydrate thereof or a solvate thereof.

13. The medicament for suppressing intracellular excess accumulation of

sodium ions according to claim 12, wherein the active ingredient is selected from the following compounds:

5-methyl-2-(1-piperazinyl)benzenesulfonic acid and 5-n-propyl-2-(1-piperazinyl)-benzenesulfonic acid

or a salt thereof, or a hydrate thereof or a solvate thereof.

14. The medicament for suppressing intracellular excess accumulation of sodium ions according to any one of claims 1 to 13, wherein the active ingredient is 5-methyl-2-(1-piperazinyl)benzenesulfonic acid monohydrate.

15. A medicament for therapeutic and/or preventive treatment of diseases caused by intracellular excess accumulation of sodium ions (provided that an ischemic heart disease, heart failure, hypertension, and arrhythmia are excluded), which comprises, as an active ingredient, the medicament for suppressing intracellular excess accumulation of sodium ions according to any one of claims 1 to 14.

16. A medicament for therapeutic and/or preventive treatment of cardiovascular diseases caused by intracellular excess accumulation of calcium ions that occurs successively after intracellular excess accumulation of sodium ions, which comprises, as an active ingredient, the medicament for suppressing intracellular excess accumulation of sodium ions according to any one of claims 1 to 14.

17. The therapeutic and/or preventive medicament according to claim 16, wherein the cardiovascular diseases caused by intracellular excess accumulation of calcium ions that occurs successively after intracellular excess accumulation of sodium ions is an ischemic heart disease, heart failure, hypertension, or arrhythmia.

18. The therapeutic and/or preventive medicament according to claim 17, wherein the ischemic heart disease is myocardial infarct or angina pectoris.

19. A medicament for therapeutic and/or preventive treatment of cardiac disorders resulting from cardiosurgery operations, which comprises, as an active ingredient, an aminobenzenesulfonic acid derivative represented by the following general formula (I) or a salt thereof, or a hydrate thereof or a solvate thereof:



wherein R¹ represents hydrogen atom, a C₁-C₆ alkyl group, a C₃-C₇ cycloalkyl group, a halogenated C₁-C₄ alkyl group, a halogen atom, or a C₆-C₁₂ aryl group; R² represents hydrogen atom, a C₁-C₆ alkyl group, or a C₇-C₁₂ aralkyl group which may have one or more substituents selected from the group consisting of cyano group, nitro group, a C₁-C₆ alkoxy group, a halogen atom, a C₁-C₆ alkyl group, and amino group; and n represents an integer of from 1 to 4.

20. The medicament for therapeutic and/or preventive treatment of cardiac disorders resulting from cardiosurgery operations according to claim 19, wherein a substituting position R¹ is position-5.

21. The medicament for therapeutic and/or preventive treatment of cardiac disorders resulting from cardiosurgery operations according to claims 19 or 20, wherein n is 2.

22. The medicament for therapeutic and/or preventive treatment of cardiac disorders resulting from cardiosurgery operations according to any one of claims 19 to 21, wherein R² is hydrogen atom, a C₁-C₃ alkyl group, or a C₇-C₁₂ aralkyl group which may have one or more substituents selected from the group consisting of a C₁-C₃ alkyl group, a C₁-C₃ alkoxy group, and a halogen atom.

23. The medicament for therapeutic and/or preventive treatment of cardiac disorders resulting from cardiosurgery operations according to any one of claims 19 to 22, wherein R² is hydrogen atom or a C₇-C₁₂ aralkyl group which may have one or more C₁-C₃ alkoxy groups.

24. The medicament for therapeutic and/or preventive treatment of cardiac disorders resulting from cardiosurgery operations according to any one of claims 19 to 23, wherein R² is hydrogen atom.

25. The medicament for therapeutic and/or preventive treatment of cardiac disorders resulting from cardiosurgery operations according to any one of claims 19 to 24, wherein R¹ is hydrogen atom, a C₁-C₆ alkyl group, a C₅-C₆ cycloalkyl group, trifluoromethyl group, a halogen atom, or phenyl group.

26. The medicament for therapeutic and/or preventive treatment of cardiac disorders resulting from cardiosurgery operations according to any one of claims 19 to 25, wherein R¹ is a C₁-C₃ alkyl group, cyclohexyl group, trifluoromethyl group, chlorine atom, bromine atom, or phenyl group.

27. The medicament for therapeutic and/or preventive treatment of cardiac disorders resulting from cardiosurgery operations according to any one of claims 19 to 26, wherein R¹ is methyl group or propyl group.

28. The medicament for therapeutic and/or preventive treatment of cardiac disorders resulting from cardiosurgery operations according to claim 19, wherein the active ingredient is selected from the following compounds:

5-methyl-2-(1-piperazinyl)benzenesulfonic acid;
5-trifluoromethyl-2-(1-piperazinyl)benzenesulfonic acid;
5-n-propyl-2-(1-piperazinyl)benzenesulfonic acid;
5-phenyl-2-(1-piperazinyl)benzenesulfonic acid;
5-chloro-2-(1-piperazinyl)benzenesulfonic acid;
5-bromo-2-(1-piperazinyl)benzenesulfonic acid;
5-isopropyl-2-(1-piperazinyl)benzenesulfonic acid;
5-cyclohexyl-2-(1-piperazinyl)benzenesulfonic acid;
5-n-propyl-2-(1-homopiperazinyl)benzenesulfonic acid;
5-n-propyl-2-[4-(2,3,4-trimethoxybenzyl)-1-piperazinyl]benzenesulfonic acid;
5-n-propyl-2-[4-(3,4-dimethoxybenzyl)-1-piperazinyl]benzenesulfonic acid
or a salt thereof, or a hydrate thereof or a solvate thereof.

29. The medicament for therapeutic and/or preventive treatment of cardiac disorders resulting from cardiosurgery operations according to claim 28, wherein the active ingredient is selected from the following compounds:

5-methyl-2-(1-piperazinyl)benzenesulfonic acid and 5-n-propyl-2-(1-piperazinyl)-benzenesulfonic acid
or a salt thereof, or a hydrate thereof or a solvate thereof.

30. The medicament for therapeutic and/or preventive treatment of cardiac disorders resulting from cardiosurgery operations according to any one of claims 19 to 29, wherein the active ingredient is 5-methyl-2-(1-piperazinyl)benzenesulfonic acid monohydrate.